Flora of Tasmania online

HALEGRAPHA [1]

Gintaras Kantvilas [2]

Halegrapha Rivas Plata & Lücking, *in* R. Lücking *et al.*, *Lichenologist* 43: 333 (2011).

Type: *H. chimaera* Rivas Plata & Lücking

Thallus crustose, corticate, containing abundant calcium oxalate crystals. Photobiont *Trentepohlia*, with cells ellipsoid to subglobose, 12–18 × 7–12 µm, scattered or clustered. Ascomata apothecia, lirelliform, black, immersed to erumpent, with or without a lateral thalline margin. Disc usually concealed. Proper exciple black, entire, rarely striate, in section apically or entirely carbonised and opaque, K–. Hypothecium hyaline to pale yellowish. Hymenium hyaline, I+ yellow-brown, KI–, usually inspersed with oil droplets. Asci elongate-clavate, 8-spored, of the *Graphis*-type: non-amyloid, with a slightly thickened apex and ± truncate ascoplasm. Paraphyses simple, straight and parallel; apices hyaline, not expanded. Ascospores fusiform, with rounded or tapered apices, transversely septate, non-halonate, hyaline when young, becoming grey-brown, I+, KI+ reddish purple at the septa; locules lens-shaped. Conidiomata unknown. Chemistry: depsidones, especially stictic or norstictic acids, or nil.

A genus of six corticolous species, five of which are tropical and one occuring in Australasia, including Tasmania. Anatomically and morphologically, *Halegrapha* is intermediate between *Graphis* and *Phaeographis*, and its distinct but enigmatic position has been established by molecular methods. It combines a whitish grey thallus containing calcium oxalate and a thick, carbonised exciple that conceals the apothecial disc (as seen in *Graphis*) with an inspersed hymenium and brown ascospores (as in *Phaeographis*).

Key references: Archer (2006); Lücking *et al.* (2011).

1 Halegrapha mucronata (Stirt.) Lücking

In R. Lücking *et al.*, *Lichenologist* 43: 340 (2011); —*Graphis mucronata* Stirt., *Trans. Glasgow Field Nat.* 4: 95 (1876); *Phaeographis mucronata* (Stirt.) Zahlbr., *Cat. Lich. Univ.* 2: 382 (1923); *Platygramme mucronata* (Stirt.) A.W.Archer, *Bibl. Lichenol.* 94: 136 (2006).

Phaeographis australiensis Müll.Arg., *Flora* 65: 504 (1882).

Thallus pale grey, smooth, continuous, 30–120 µm thick, forming diffuse patches to 10 cm wide which often fuse together into extensive colonies; calcium oxalate abundant between the cortical and photobiont layers. Lirellae scattered or crowded, simple or sparsely branched, straight or sinuous, 0.8–4 mm long and 0.2–0.3 mm wide, with a thin, basal thalline margin; disc usually obscured, black. Exciple in section carbonised entirely, usually convergent at the base, sometimes only thinly, laterally 12–60 µm thick. Hypothecium 10–30 µm thick. Hymenium 65–120 µm thick, not inspersed, hyaline apart from a brown epithecial layer; asci 80–100 × 19–25 µm; paraphyses 1.5–2.5 µm wide. Ascospores transversely 7–12-septate, at first hyaline, later becoming pale brown, ultimately deep brown and deformed, (30–)34–*43.5*–57(–64) × 7–*9.0*–11(–11.5) µm, with a hyaline mucronate extension 2–5 µm long at both ends or at the distal end only.

1 This work can be cited as: Kantvilas G (2023). *Halegrapha*, **version 2023:1**. In MF de Salas (Ed.) *Flora of Tasmania Online*. 2 pp. (Tasmanian Herbarium, Tasmanian Museum and Art Gallery: Hobart). **https://flora.tmag.tas.gov.au/lichens/genera/halegrapha/** (accessed 21 September 2022).

2 Tasmanian Herbarium, Tasmanian Museum & Art Gallery, PO Box 5058, UTAS LPO, Sandy Bay, TAS 7005, Australia.

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Chemistry: norstictic and connorstictic acids, frequently in such low concentrations that TLC is required for detection because spot tests with K and P are unreliable, and the characteristic red, needle-like crystals that form when microscope sections are eluted with K are frequently not seen.

Very common and widespread in coastal areas (including the Bass Strait islands), and often the dominant epiphyte in *Acacia longifolia* subsp. *sophorae*-dominated scrub, where it forms extensive thalli associated with *Lecanora flavopallida* and *Flavoparmelia rutidota*. Less commonly, it is found in inland areas on garden trees, in dry sclerophyll forest, heathland, wet sclerophyll forest and, rarely, on canopy limbs in the rainforest canopy. It is also known from the southern Australian mainland and New Zealand. The enigmatic characters of this lichen are reflected in its chequered taxonomic history, which has seen it included in *Graphis*, *Phaeographis* and *Platygramme*. It also has numerous nomenclatural synonyms, although only those relevant to Tasmanian literature are cited above; for others see Lücking *et al.* (2011).

Granville Harbour, 41°49'S 145°02'E, 20 m, 2009, *P. James & G. Kantvilas 249/84* (BM, HO); Fossil Cliffs, Maria Island, 42°35'S 148°05'E, 100 m, 2014, *G. Kantvilas 434/14* (HO); Cape Portland, Musselroe Wind Farm, 40°48'35"S 148°06'23"E, 20 m, 2018, *G. Kantvilas 245/18* (HO).

REFERENCES

Lücking R, Rivas Plata E, Kalb K, Common RS, Barcenas Peña A, Duya MV (2011) *Halegrapha* (Ascomycota: Graphidaceae), an enigmatic new genus of tropical lichenized fungi dedicated to Mason E. Hale Jr. *Lichenologist* **43** 331–343.

Archer AW (2006) The lichen family Graphidaceae in Australia. *Bibliotheca Lichenologica* **94** 1–191.

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